NASA TECH BRIEF

Ames Research Center

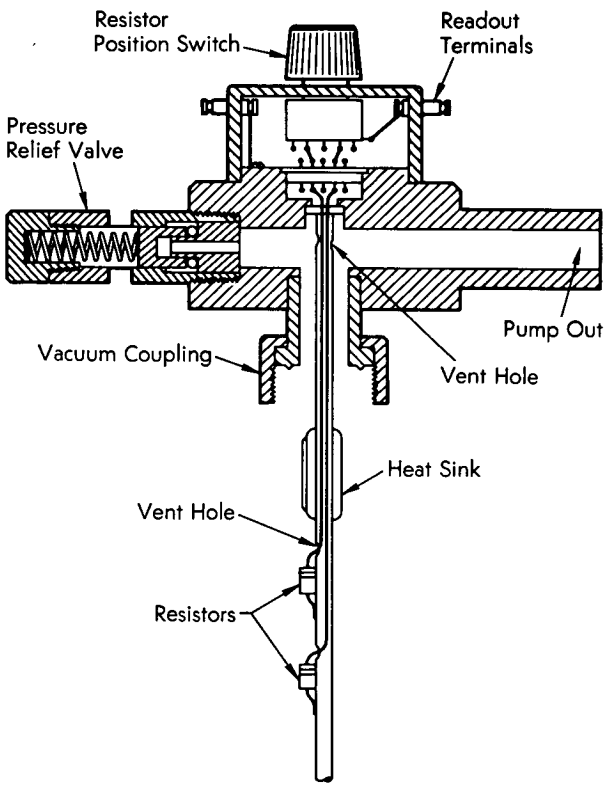
Multipurpose Top for Liquid Helium Dewar

Many laboratory experiments can be performed more simply with a multipurpose top for a liquid helium Dewar flask which guards against "flash" vaporization of liquid helium and allows the boiling temperature of liquid helium to be lowered by reduction of ambient pressure in the Dewar flask.

The multipurpose top fabricated as shown in the diagram employs familiar circuitry and standard ⅛-watt, 220-ohm carbon resistors for continuous sensing of liquid level; the resistors are mounted on a thin-walled stainless steel tube which extends nearly to the bottom of the Dewar flask. For most experiments of moderate duration, the heat dissipated by the resistors will be negligible. The number of positions on the switch, and the number of resistors are dictated by the height of the helium container and the liquid-level resolution desired. If an ohmmeter is used to monitor the liquid level, the generation of heat by the resistors will be held to a minimum.

A pressure relief valve of the common ball-and-spring type with a silicone O-ring for the seal is incorporated in the multipurpose top to guard against sudden development of pressure in the Dewar flask. Holes are included in the upper and lower parts of the stainless tube above the liquid level so that removal of helium gas from the upper part of the Dewar by pumps can continue even though the throat of the Dewar is closed with ice.

A top constructed as indicated above has been used successfully with commercially available helium Dewars; it is rugged and simple, and it does not require frequent calibrations or adjustments.



Note:

No additional documentation is available. Specific questions, however, may be directed to:

Technology Utilization Officer
Ames Research Center
Moffett Field, California 94035
Reference: B72-10302

(continued overleaf)

Patent status:

NASA has decided not to apply for a patent.

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